

**IN THE UNITED STATES DISTRICT COURT  
FOR THE EASTERN DISTRICT OF TEXAS  
MARSHALL DIVISION**

**KAIST IP US LLC,** §  
§  
**Plaintiff,** §  
§  
v. § **CIVIL ACTION NO. 2:16-CV-01314-JRG**  
§  
**SAMSUNG ELECTRONICS CO., LTD.,** §  
**ET AL.,** §  
§  
**Defendants.** §

**MEMORANDUM OPINION AND ORDER**

Before the Court is Defendants'<sup>1</sup> Motion to Stay Case Pending *Ex Parte* Reexamination (the “Motion to Stay”). (Dkt. No. 651.) Having considered the Motion to Stay, the Court is of the opinion that it should be and hereby is **DENIED**.

Also before the Court are the following motions: (1) Defendants’ Renewed Motion for Judgment as a Matter of Law on Non-Infringement and Invalidity (the “Liability JMOL”) (Dkt. No. 578); (2) Samsung’s Renewed Motion for Judgment as a Matter of Law for Damages of No More Than \$6.2 Million (the “Damages JMOL”) (Dkt. No. 577); (3) Samsung’s Renewed Motion for Judgment as a Matter of Law on Willfulness (the “Willfulness JMOL”) (Dkt. No. 580); (4) Motion by KAIST IP US (“KAIST”) for Enhancement of Damages Due to Willful Infringement (Dkt. No. 586) (the “Motion for Enhancement”); (5) Samsung’s Motion for New Trial and Contingent Motion of GlobalFoundries and Qualcomm for New Trial (Dkt. No. 579) (the “Motion

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<sup>1</sup> Samsung Electronics Co., Ltd.; Samsung Electronics America, Inc.’ Samsung Semiconductor, Inc.; Samsung Austin Semiconductor, LLC (collectively, “Samsung”); GlobalFoundries Inc. and GlobalFoundries U.S. Inc. (collectively, “GlobalFoundries”); and Qualcomm Inc. (“Qualcomm”) (Samsung, GlobalFoundries, and Qualcomm collectively, the “Defendants”).

for New Trial”). Having considered these motions, and for the reasons set forth herein, the Court is of the opinion that Defendants’ Liability JMOL, Samsung’s Damages JMOL, and Samsung’s Willfulness JMOL should be and hereby are **DENIED**. The Court further concludes that KAIST’s Motion for Enhancement should be and hereby is **GRANTED**. Finally, the Court concludes that Samsung’s Motion for New Trial should be and hereby is **CONDITIONALLY DENIED** subject to a remittitur in the amount of \$203,003,416.

Finally, before the Court are (1) Motion by KAIST for Entry of Final Judgment as the Prevailing Party and Award of Costs and Pre- and Post-Judgment Interest (Dkt. No. 587) (the “Motion for Final Judgment”); and (2) Motion by KAIST for Exceptional Case and Award of Attorney Fees and Costs (Dkt. No. 585) (the “Motion for Fees and Costs”). In light of the foregoing, the Court **CARRIES** the Motion for Final Judgment and the Motion for Fees and Costs.

## I. BACKGROUND

KAIST brought suit against Defendants alleging infringement of United States Patent No. 6,885,055 (the “’055 Patent” or the “Asserted Patent”) entitled “Double-Gate FinFET Device And Fabricating Method Thereof.” (Dkt. No. 1 ¶ 19.) Jong-Ho Lee is listed as the primary inventor of the ’055 Patent. (Dkt. No. 1-1.) KAIST asserted that Defendants “commonly and/or jointly manufacture semiconductors and/or sell infringing application processor chips” that infringe upon the ’055 Patent. (*Id.* ¶ 17.) A jury trial was held beginning on June 11, 2018. (Dkt. No. 487.) At trial, KAIST asserted infringement of Claims 1–6, 11–13, and 15–17 of the ’055 Patent (the “Asserted Claims”). (Dkt. No. 429.) At the close of evidence, the parties moved for judgment as a matter of law under Federal Rule of Civil Procedure 50(a) on the issues of infringement, invalidity, willfulness, and damages, which were denied. (Dkt. No. 497.) On June 15, 2018, the jury returned a verdict finding that Samsung, GlobalFoundries, and Qualcomm had each infringed at least one of the Asserted Claims; that none of the Asserted Claims were invalid; that Samsung’s

infringement had been willful but GlobalFoundries and Qualcomm’s infringement had not been willful; and that KAIST should be awarded the following sums: \$400,000,000.00 from Samsung, \$0.00 from GlobalFoundries, and \$0.00 from Qualcomm. (Dkt. No. 499.) The award against Samsung was designated as a lump sum and was found to be fair and reasonable compensation for Samsung’s infringement. (*Id.*) These post-trial motions followed.

On October 31, 2018, more than four months after the jury returned its verdict, Samsung filed a request for *ex parte* reexamination at the U.S. Patent and Trademark Office (“PTO”) challenging the Asserted Claims of the ’055 Patent. (Dkt. No. 659 ¶ 2.) The PTO granted the request and, on reexamination, rejected the Asserted Claims. (Dkt. No. 659-3 at 103.) This rejection has not yet been made final by the PTO as KAIST has not yet exhausted its appeals of this determination. (*See* 659-1 ¶¶ 9–23.) Until a final determination is made, the Asserted Claims remain part of a duly issued United States Patent. *See* 35 U.S.C. § 307(a).

## **II. DEFENDANTS’ MOTION TO STAY**

As a threshold matter, the Court considers whether, as Defendants argue, a stay is warranted in light of the PTO’s determination on reexamination. (Dkt. No. 651.) The Court determines that it is not.

In deciding whether to stay litigation pending reexamination, courts consider: “(1) whether the stay will unduly prejudice the nonmoving party; (2) whether the proceedings before the court have reached an advanced stage, including whether discovery is complete and a trial date has been set; and (3) whether the stay will likely result in simplifying the case before the court.” *Papst Licensing GmbH & Co., KG v. Apple, Inc.*, No. 6:15-cv-1095-RWS, 2018 WL 3656491, at \*2 (E.D. Tex. Aug. 1, 2018). None of these factors militate in favor of a stay while several clearly militate against a stay.

As to the first factor, a stay would be highly prejudicial to KAIST and would present Defendants with a clear tactical advantage. The Court notes the extreme dilatoriness and delay of Samsung’s request for reexamination. Samsung waited until after the jury’s verdict in this case, which found against Defendants on *all* their invalidity arguments raised at trial, and *then* it ran to the PTO with *new* invalidity arguments never raised before the jury. (*See* Dkt. No. 659-2 at 12.) In doing so, Samsung manipulated an administrative process designed to streamline disputes to *avoid* the need for a jury trial. There is little doubt this was done in order to gain instead a second bite at the apple.<sup>2</sup> *See* MPEP § 2209 (“Parties are cautioned that the reexamination statute, regulations, and published examining procedures do not countenance so-called ‘litigation tactics’ in reexamination proceedings.”).

While Samsung is within its statutory rights to avail itself of the administrative remedies the Patent Act affords, such should not be used to effect a collateral attack on the verdict of a jury empaneled pursuant to the Seventh Amendment or the judgments of an Article III court. *See In re Swanson*, 540 F.3d 1368, 1379 n.5 (Fed. Cir. 2008) (“[A]n attempt to reopen a final federal court judgment of infringement on the basis of a reexamination finding of invalidity might raise constitutional problems.”). If a final judgment in this case is entered, as KAIST has requested (Dkt. No. 587), KAIST’s right to enforce that judgment will stand regardless of any subsequent determinations regarding the underlying patent. *See Moffitt v. Garr*, 66 U.S. 273, 283 (1861) (Title

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<sup>2</sup> Having been denied repeated attempts to institute *inter partes* review of the Asserted Patent, Samsung’s reexamination request is more likely akin to at least a fourth bite at the apple. *See* Decision, *Samsung Elecs. Co. v. KAIST IP US LLC*, IPR2017-01046, Paper 12 (P.T.A.B. Oct. 2, 2017) (denying institution); Decision, *Samsung Elecs. Co. v. KAIST IP US LLC*, IPR2017-01047, Paper 13 (P.T.A.B. Oct. 2, 2017) (denying institution); Decision, *Samsung Elecs. Co. v. KAIST IP US LLC*, IPR2018-00266, Paper 9 (P.T.A.B. May 29, 2018) (denying institution); Decision, *Samsung Elecs. Co. v. KAIST IP US LLC*, IPR2018-00267, Paper 9 (P.T.A.B. May 29, 2018) (denying institution).

to money judgments for patent infringement “does not depend upon the patent, but upon . . . the judgment of the court.”). By contrast, if this case is stayed and no final judgment issues, the issuance of a final reexamination certificate would effect the destruction of this lawsuit.<sup>3</sup> See *Fresenius USA, Inc. v. Baxter Int'l, Inc.*, 721 F.3d 1330, 1339 (Fed. Cir. 2013); *see also id.* at 1351 n.2 (Newman, J. dissenting). To stay the case at this stage would reward Samsung’s dilatory tactics while substantially prejudicing KAIST’s right to rely on a jury verdict that it spent significant hours and resources to secure. This factor weighs strongly against a stay.

As to the second factor, to say that the proceedings before the court have reached an advanced stage would be an understatement. Discovery is complete, a trial date has been set, a trial has occurred, and the jury and the Court have both issued their determinations on the merits of this case. This factor weighs strongly against a stay.

As to the third factor, simplification of the case, if any, would be negligible, if not microscopic. The jury has already rendered its verdict in this case (Dkt. No. 499) and the Court has already issued its findings of fact and conclusions of law regarding Defendants’ equitable defenses (Dkt. No. 569). All that remains is for the Court to rule on the parties’ post-trial motions, which the Court does today.<sup>4</sup> Thus, any simplification of the issues could only be *de minimis*. This factor is at best neutral.

Having found no factors weighing in favor of a stay and finding a majority of the factors weighing against such a stay, the Court determines and finds that a stay of this case in favor of

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<sup>3</sup> *Fresenius* explains that “Congress expected reexamination to take place *concurrent* with litigation.” 721 F.3d at 1339 (emphasis added). Samsung’s request for reexamination was not concurrent with this litigation but took place several months after a trial on the merits was held and the jury returned its verdict.

<sup>4</sup> The Court herein denies Samsung’s Motion for New Trial conditioned up a remittitur by KAIST. The Court will not speculate on what decision KAIST will make in that regard.

Samsung's dilatory reexamination request would be not only inappropriate but unfair. Consequently, the Court denies Defendants' Motion to Stay and will proceed to consider the parties' post-trial motions.

### **III. DEFENDANTS' MOTIONS RELATED TO LIABILITY AND WILLFULNESS**

Having considered Defendants' Liability JMOL and Samsung's Willfulness JMOL, the Court finds that substantial evidence exists to support the jury's verdict on each issue.

#### **A. Legal Standard**

"Judgment as a matter of law is proper when 'a reasonable jury would not have a legally sufficient evidentiary basis to find for the party on that issue.'" *Abraham v. Alpha Chi Omega*, 708 F.3d 614, 620 (5th Cir. 2013) (quoting Fed. R. Civ. P. 50(a)). The non-moving party must identify "substantial evidence" to support its positions. *TGIP, Inc. v. AT&T Corp.*, 527 F. Supp. 2d 561, 569 (E.D. Tex. 2007). "Substantial evidence is more than a mere scintilla. It means such relevant evidence as a reasonable mind might accept as adequate to support a conclusion." *Eli Lilly & Co. v. Aradigm Corp.*, 376 F.3d 1352, 1363 (Fed. Cir. 2004).

"The Fifth Circuit views all evidence in a light most favorable to the verdict and will reverse a jury's verdict only if the evidence points so overwhelmingly in favor of one party that reasonable jurors could not arrive at any contrary conclusion." *Core Wireless Licensing S.A.R.L. v. LG Elecs., Inc.*, 880 F.3d 1356, 1361 (Fed. Cir. 2018) (citing *Bagby Elevator Co. v. Schindler Elevator Corp.*, 609 F.3d 768, 773 (5th Cir. 2010)). A court must "resolve all conflicting evidence in favor of [the verdict] and refrain from weighing the evidence or making credibility determinations." *Gomez v. St. Jude Med. Daig Div. Inc.*, 442 F.3d 919, 937-38 (5th Cir. 2006).

#### **B. Infringement**

In their Liability JMOL, Defendants assert that Plaintiff failed to establish that several limitations of the Asserted Claims were met in the accused products: (1) a "gate which is formed

on said . . . second oxide layer”; (2) a “first oxide layer”; (3) a “first oxide layer . . . with a thickness greater or equal to that of the gate oxide”; and (4) “a Fin active region which is a wall-shape single crystalline silicon.” (Dkt. No. 578 at 1.) These limitations appear in Claims 1 and 13 of the ’055 Patent from which the remaining Asserted Claims depend. (DX-001 at 12:2–27; 13:40–14:22.) Defendants further assert that there is no evidence of direct infringement by Defendant GlobalFoundries Inc. (Dkt. No. 578 at 1.)

### **1. “gate which is formed on said . . . second oxide layer”**

Defendants assert that the “undisputed evidence establishes . . . as a matter of law” that the limitation “a gate which is formed on said . . . second oxide layer” is not met. (Dkt. No. 578 at 5.) The parties did not request, and the Court did not provide, a construction of the phrase “formed on.” (See Dkt. No. 179 (construing disputed claims).) Accordingly, the jury was instructed to apply its plain and ordinary meaning. (Dkt. No. 498 at 43:15–17.)

Defendants argue that KAIST’s expert, Dr. Kelin Kuhn, identified the “second oxide layer” as a “silicon dioxide” layer formed on either side of the fin in the accused products. (Dkt. No. 490 at 9:1–10:7.) However, it is undisputed that in the accused product the “gate” is always formed on a hafnium layer that itself is formed on the silicon dioxide layer; the gate is not formed directly on the silicon dioxide layer.<sup>5</sup> (Dkt. No. 491 at 59:23–61:10.) Defendants argue that since it is undisputed that the “gate” is formed on the hafnium layer instead of the “second oxide layer,” a finding of infringement is precluded as a matter of law. (Dkt. No. 578 at 7.)

KAIST responds that Defendants’ argument requires construing the term “formed on” to mean “formed *directly* on.” (Dkt. No. 592 at 3 (emphasis in original).) However, Dr. Kuhn testified

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<sup>5</sup> The parties and their witnesses at times refer to “silicon dioxide” as “SiO<sub>2</sub>.” Similarly, the parties and their witnesses at times refer to “hafnium” as “hafnium oxide,” “HfO,” “high-k,” or a “high-k dielectric.”

that “there’s nothing in the claims that says that the gate is directly on an SiO<sub>2</sub> layer.” (Dkt. No. 490 at 23:4–5.) Moreover, Defendants’ expert, Dr. Vivek Subramanian, testified that he did not dispute in his expert report that this element was met. (496 at 81:21–82:6.)

The Court agrees with KAIST that Defendants argument effectively asks the Court to construe “formed on” as “formed directly on.” “In the absence of such a construction, however, the jury was free to rely on the plain and ordinary meaning of the term . . . .” *ePlus, Inc. v. Lawson Software, Inc.*, 700 F.3d 509, 520 (Fed. Cir. 2012). “[L]itigants waive their right to present new claim construction disputes if they are raised for the first time after trial.” *Cordis Corp. v. Boston Sci. Corp.*, 561 F.3d 1319, 1331 (Fed. Cir. 2009) (citations, quotations omitted). The jury heard testimony that the claims do not require the gate to be formed directly on the second oxide layer and was entitled to credit this testimony.

Moreover, that something may be considered to be “on” something else, even if there is an intervening layer, is consistent with the plain and ordinary meaning of the term. (*See* Dkt. No. 498 at 33:18–22 (instructing jurors that they “are permitted to draw such reasonable inferences . . . as [they] feel are justified in the light of common experience”).) For example, the court observes that one might properly describe paint as being put “on” a wall even if there is an intervening layer of primer or describe a table as “on” the floor even if it is on a rug that itself is on the floor. The Court finds that there was substantial evidence from which the jury could conclude that the accused products contain a “gate which is formed on said . . . second oxide layer.”

## **2. “first oxide layer”**

Defendants argue that the accused products do not have a layer that meets all the limitations of the “first oxide layer,” but instead, KAIST identified the combination of the silicon dioxide layer and the hafnium layer as the “first oxide layer.” (*See* Dkt. No. 490 at 21:22–22:4.) It is undisputed that the silicon dioxide layer and hafnium layer are two different layers formed by

separate processes at separate times and having separate properties. (*See* Dkt. No. 497 at 199:17–200:5.) However, according to Defendants, “the recited ‘first oxide layer’ cannot be made up of two separate layers formed at different times, as only one can be ‘first.’” (Dkt. No. 578 at 9.) The express requirements of the “first oxide layer” cannot be met by either the silicon dioxide layer or hafnium layer alone, and therefore, according to Defendants, no reasonable jury could have found that this limitation was met. (*Id.* at 9–10.)

KAIST responds that this argument “is a surreptitious request for claim construction after trial.” (Dkt. No. 592 at 7.) KAIST argues that the “overwhelming weight of evidence established that” the silicon dioxide and hafnium together constituted a “first oxide layer.” (*Id.*; *see, e.g.*, Dkt. No. 490 at 15:3–9, 21:25–22:2; Dkt. No. 497 85:25–86:14.)

The Court agrees that Defendants argument again seeks to obtain a favorable claim construction after trial and that such has been waived. *Cordis*, 561 F.3d at 1331. Moreover, Defendants offer no explanation to the Court as to why the term “first” must be used in a temporal sense, precluding two layers formed at separate times from being the “first oxide layer,” rather than, for example, a means of differentiating it from the “second oxide layer.” The Court finds substantial evidence from the record that the jury was free to credit showing that the silicon dioxide and hafnium layers together meet the limitation of a “first oxide layer.”

### **3.     “a first oxide layer . . . with a thickness greater or equal to that of the gate oxide”**

Defendants argue that this limitation is not met because KAIST relied on a theory that the first oxide layer (at the top of the fin) and the gate oxide (on the sides of the fin) were “considered equal *with manufacturing variation.*” (Dkt. No. 578 at 11 (emphasis in original) (quoting Dkt. No. 490 at 18:21–19:2).) This theory, Defendants assert, “fails as a matter of law, both literally and under the doctrine of equivalents.” (*Id.*)

**a. There is substantial evidence of literal infringement**

Defendants argue that this theory fails as a matter of literal infringement for several reasons. First, the term “greater or equal to” is a “mathematically precise, numerical boundary” that uses no words of approximation to add any flexibility. (*Id.* at 12.) Second, the Federal Circuit has already rejected the theory that manufacturing tolerances can be read into claim terms. (*Id.* at 13 (citing *Senmed, Inc. v. Richard-Allan Med. Indus., Inc.*, 888 F.2d 815, 820 n.10 (Fed. Cir. 1989); *Middleton, Inc. v. 3M*, 311 F.3d 1384, 1389 (Fed. Cir. 2002).) Third, Defendants argue that, “Dr. Kuhn did not demonstrate that *any* accused product, much less *all* of them, satisfied this limitation” because she did not establish that the products she measured were “representative of all accused products.” (*Id.*)

The Court finds these arguments unpersuasive. First, the Court does not find that the terms of the Asserted Claims must necessarily be interpreted with mathematical precision. Rather, “the ordinary and customary meaning of a claim term is the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention.” *Phillips v. AHW Corp.*, 415 F.3d 1303, 1313 (Fed. Cir. 2005). There is ample evidence in the record that a person of ordinary skill in the art would have understood the term “equal” to include some manufacturing variation. Defendants seek to elevate “equal” to mean “exactly equal” without any support in the evidence for such a construction.<sup>6</sup>

Dr. Subramanian admitted that “when a person of ordinary skill in the art is reading the ‘055 patent and reading the claim that says equal thickness on the upper surface and the sidewalls,

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<sup>6</sup> Extending defendants argument to its logical conclusion, they would say that a person of ordinary skill in the art would not consider 1.0000000001 nm to be “equal” to 1.0000000002 nm. Defendants offer no evidence that such unerring precision is necessary in the relevant art such that the claims should be understood this way. In any event, Defendants seek in effect a post-verdict claim construction.

that person is reading the patent with the understanding of manufacturing tolerances.” (Dkt. 496 at 99:20–100:1.) Dr. Kuhn testified that “you’re going to see some level of manufacturing variation even in an extremely healthy uniform process.” (Dkt. No. 491 at 102:11–13.) The jury was entitled to take this testimony into account in determining whether this limitation was met under its plain and ordinary meaning as understood by a person of skill in the art.

Second, the Court disagrees that the Federal Circuit has foreclosed any consideration of manufacturing tolerances in interpreting patent claims. To the contrary such considerations would be entirely appropriate if there is evidence that a person of ordinary skill in the art would understand the claims terms with these variations in mind. The Federal Circuit’s decisions in *Senmed* and *Middleton* do not compel an opposite result. The *Senmed* court did not find that manufacturing tolerances were never relevant but found that they were not sufficient in that case to overcome prosecution history estoppel. *See* 888 F.2d at 820 & n.10. There is no similar prosecution history estoppel in this case.

In *Middleton*, the Federal Circuit criticized the patentee’s reliance on a post-issuance supply contract showing manufacturing tolerances as evidence of a patent claim term. The Federal Circuit made the unremarkable observation that “[t]he meaning of a patent term . . . is not subject to revision or alteration by *subsequent* contract between the patentee and its suppliers.” 311 F.3d at 1389 (emphasis added). What the *Middleton* court did *not* do, however, was to hold that manufacturing tolerances are never relevant. To the contrary, if such evidence “supplies some insight into the understanding of skilled artisans *at the time of invention*, it may have some relevance to claim construction.” *Id.* (emphasis added). Here, KAIST has not attempted to revise the meaning of a claim term with a subsequent contract or other *post-hoc* evidence. Rather KAIST’s experts—and Defendants’ experts—testified that a person of ordinary skill in the art *at*

*the time* would have read the patent with manufacturing tolerances in mind. (*See, e.g.*, Dkt. 496 at 99:20–100:1.) The Court views this as entirely in keeping with *Phillips* and not afoul of the Federal Circuit’s admonition in *Middleton*.

Finally, the Court finds that Dr. Kuhn provided substantial evidence that the accused products satisfied this limitation. As an initial matter, the Court agrees with KAIST that Defendants’ criticism of the products Dr. Kuhn claimed were representative in her analysis is essentially a late-breaking, and thus waived, *Daubert* challenge. (Dkt. No. 592 at 9 (citing *Versata Software, Inc. v. SAP America, Inc.*, 717 F.3d 1255, 1264 (Fed. Cir. 2013))). The reliability of Dr. Kuhn’s analysis goes to the admissibility of Dr. Kuhn’s opinion, not its sufficiency once offered. *See Stevenson v. E.I. DuPont De Nemours & Co.*, 327 F.3d 400, 407 (5th Cir. 2003).

Dr. Kuhn testified that she “analyzed transistors incorporating the Defendants’ 14-nanometer bulk FinFET technology” and that this analysis was “representative of all the 14-nanometer LPE/LPP devices, chips, and products.” (Dkt. No. 489 at 72:8–12, 73:21–24.) Dr. Kuhn testified that on average, “for the logic transistors, for all the data I had, was an upper surface measurement of 2.78 nanometers and a side-wall measurement of 2.65 nanometers,” and for the I/O devices, “the upper surface on this one is 5.13, and the side-walls are 5.12, which is astonishingly close.” (Dkt. No. 497 at 171:18–23, 172:9–15.) Defendants’ own expert, Dr. Bob Wallace, admitted that “averaging would be appropriate” to measure “the thickness numbers at the top and sides of the Fin.” (Dkt. No. 494 at 188:1–5.)

Further, Defendants’ own internal documents confirm that the thickness was “equal on all sides.” (Dkt. No. 490 at 16:5–24; PX0853 at 51.) Heodon Jeong, a senior engineer at Samsung, likewise testified that the thicknesses on all three sides of the Fin “are equivalent” and that “[t]here is no difference on the gate oxide on the sides and the gate oxide on the top of the fin.” (Dkt. No.

493 at 47:16–20, 49:20–24.) Thus, there was substantial jury to conclude that the “first oxide layer” had “a thickness greater or equal to that of the gate oxide” in the accused products, and therefore that this limitation was met.

**b. There is substantial evidence of infringement by equivalents**

Even if this limitation were not literally met in the accused products, the jury had substantial evidence from which to find infringement under the doctrine of equivalents. Defendants argue that Dr. Kuhn’s doctrine of equivalents analysis is insubstantial because it “does not focus on the differences in the *thicknesses* required by the claims.” (Dkt. No. 602 at 6 (emphasis in original).) This argument is unpersuasive for two reasons. First, it is factually wrong. Dr. Kuhn testified that “under the doctrine of equivalents, the differences in the oxide layer *thicknesses* are insubstantial.” (Dkt. No. 490 at 20:14–16 (emphasis added).) Second, it is legally inapposite. “Under the doctrine of equivalents, a product or process that does not literally infringe a patent claim may nevertheless be held to infringe ‘if it performs substantially the same function in substantially the same way to obtain the same result.’” *Duncan Parking Techs., Inc. v. IPS Grps., Inc.*, 914 F.3d 1347, 1362 (Fed. Cir. 2019) (quoting *Graver Tank & Mfg. Co. v. Linde Air Prods. Co.*, 339 U.S. 605, 608 (1950)). The test does not require an analysis of whether the relative dimensions are insubstantial. Dr. Kuhn provided competent testimony under the appropriate standard for the doctrine of equivalents. (Dkt. No. 490 at 20:17–25.)

Next, relying on *Lear Siegler, Inc. v. Sealy Mattress Co.*, Defendants argue that Dr. Kuhn’s doctrine of equivalents analysis is “legally insufficient because it relies on the exact same ‘manufacturing tolerances’ she used for literal infringement.” (Dkt. No. 578 at 16 (citing 873 F.2d 1442, 1425 (Fed. Cir. 1989))). However, *Lear* does not stand for the proposition that a patentee cannot rely on the same theories for both literal infringement and the doctrine of equivalents. *Lear* merely requires “testimony explicitly comparing the claimed and accused devices as to all three

elements of equivalents” outlined in *Graver Tank*. 873 F.2d at 1426. Dr. Kuhn provided such testimony. (Dkt. No. 490 at 20:17–25.)

Finally, Defendants argue that KAIST’s equivalents theory results in claim vitiation because it equates “greater than or equal to” with its polar opposite, “less than.” (Dkt. No. 578 at 16 (citing *Moore U.S.A., Inc. v. Standard Reg. Co.*, 229 F.3d 1091, 1106 (Fed. Cir. 2000))). However, this is not the case. Rather, KAIST argues that manufacturing variations result in points of inequality because the layer is “bumpy at the atomic level.” (Dkt. No. 592 at 15 (citing Dkt. No. 490 at 17:5–19:20).) Claim vitiation applies where “one of skill in the art would understand that the literal and substitute limitations are not interchangeable.” *Brilliant Instruments, Inc. v. GuideTech, LLC*, 707 F.3d 1342, 1347 (Fed. Cir. 2013). Defendants’ own expert admitted that a person of ordinary skill in the art would read the claim language with manufacturing tolerances in mind. (Dkt. No. 496 at 99:20–100:1.) Thus, the it would not be clear to a person of skill in the art that “greater than or equal to” forecloses layers that are substantially equal within manufacturing tolerances.

#### **4. “a Fin active region which is a wall-shape single crystalline silicon”**

Defendants argue that that the accused products do not meet the “wall-shape” Fin limitation of the claims because “the irrefutable evidence shows that the accused fin is parabola-shaped,” which “is critical because, unlike a wall, a parabola has no clear demarcations between its sides and upper-surface.” (Dkt. No. 578 at 17.) It is ironic that Defendants argue there are no clear demarcations between the sides and top of the Fins of the accused products *immediately* after devoting seven pages of their motion to arguing that the thickness of the first oxide layer on the upper surface of the Fin is not greater than or equal to the gate oxide layer of the sides of the Fin, seemingly having no problem distinguishing the upper surface from the sides. (See Dkt. No. 578 at 10–16.) Defendant’s witnesses Dr. Wallace and Mr. Jeong had no issue distinguishing the upper

surface and sides of the Fins either. (Dkt. No. 494 at 194:11–14; Dkt. No. 493 at 49:7–50:12.) Dr. Kuhn explained that Defendants’ devices have a Fin active region that is wall-shape and single crystal. (Dkt. No. 489 at 76:9–78:9.) This is substantial evidence in the record from which the jury could conclude that this limitation is met.

### **5. Infringement by GlobalFoundries, Inc.**

Defendant’s challenge the jury’s finding of infringement by GlobalFoundries, Inc. (“GFI”). Defendants do not dispute the finding of infringement as to GlobalFoundries U.S. Inc. (“GF US”), but dispute such finding as to GFI, as distinct from GF US, on the grounds that the undisputed evidence showed “that GFI is a holding company with no operations—including no sales, manufacturing, or other ordinary business activities.” (Dkt. No. 578, at 18 (citing Dkt. No. 493 at 61:12–15, 72:2–74:16; Dkt. No. 494 at 50:13–14, 75:17–20).) The jury returned a verdict finding the “GlobalFoundries Defendants” liable for infringement but also finding such infringement was not willful and awarding \$0.00 in damages for such infringement. (Dkt. No. 499.) The verdict defined the “GlobalFoundries Defendants” as “GlobalFoundries, Inc., and GlobalFoundries U.S. Inc., collectively.” (*Id.* at 1.)

The Court notes with some level of frustration—as it did when Defendants objected to collective reference to “GlobalFoundries” for the *first time* after the close of all evidence—“that beginning with its preliminary jury instruction, the Court has indicated throughout the trial that the Defendants would be identified and referred to on that basis.” (Dkt. No. 498 at 8:6–9.) Indeed, from the time they first introduced themselves to the venire panel, counsel for Defendants referred to GFI and GF US collectively as “GlobalFoundries.” (Dkt. No. 487 at 11:14–16, 61:13–16 (“I am proud to be here . . . today representing the Defendants, Samsung, Qualcomm, and GlobalFoundries. Earlier you met representatives . . . of the three Defendants.”).) Immediately after being sworn in, the Court instructed the jury members, without objection, that “throughout

the course of the trial you may hear [GFI and GF US] referred to collectively as either GlobalFoundries or as the GlobalFoundries Defendants.” (Dkt. No. 488 at 11:8–10.) Defendants sat on their hands and never objected to this approach until all the evidence had been presented to the jury. In fact, from their opening statement onward, Defendants themselves regularly referred to “GlobalFoundries” as if it was a single defendant. (*Id.* at 64:12 (“GlobalFoundries is another Defendant involved here.”).)

Thus, it was amply clear to the jury that references to “GlobalFoundries” throughout the trial would refer to *both* GFI and GF US. On that basis, the jury was free to credit evidence and testimony that “GlobalFoundries” infringed the Asserted Claims, including the opinions of Dr. Kuhn, as being equally applicable to both GFI and GF US. (*See, e.g.*, Dkt. No. 489 at 72:8–23, 73:25 *et seq.*) Indeed, in their cross-examination of Dr. Kuhn, Defendant’s made no attempt to distinguish GFI from GF US. (Dkt. No. 491 at 94:19–23 (“Q. And you were asked to do an infringement analysis . . . of GlobalFoundries’s products, right? A. Yes, sir.”).)

The Court acknowledges that testimony was adduced at trial indicating that GFI is a holding company without operations. (*See, e.g.*, Dkt. No. 494 at 50:13–14.) However, the Rule 50(b) motion standard is not whether there was substantial evidence to support a finding contrary to the jury’s verdict. Nor is the standard whether the Court sitting in place of the jury would have found the contrary evidence adequate to outweigh the evidence supporting the jury’s verdict. Rather, the Court must determine whether there is substantial evidence to support the jury’s verdict as those citizens returned it. The jury, being free to credit testimony about “GlobalFoundries” as

equally applicable to GFI and GF US, had substantial evidence from which to make a finding that GFI infringed the Asserted Claims.<sup>7</sup>

### C. Invalidity

Defendants assert that judgment as a matter of law “of invalidity is appropriate, as there is clear and convincing evidence that [the Asserted Claims] are invalid under 35 U.S.C. §§ 102, 103.” (Dkt. No. 578 at 21.)

As an initial matter, the Court notes that Defendants argument that “Plaintiff conceded” that certain limitations are met in the prior art is unsupported in the record and misunderstands Defendants burden under Rule 50(b). (Dkt. No. 578 at 22.) KAIST did not stipulate that any limitations were met in the prior art. It was therefore Defendants burden to prove by clear and convincing evidence that *all* limitations were met in the prior art, and it is their burden now to demonstrate evidence that “points so overwhelmingly in favor of one party that reasonable jurors could not arrive at any contrary conclusion.” *Core Wireless*, 880 F.3d at 1361. Having failed to point to any evidence to support such a conclusion as to several limitations, the Court finds that Defendants have failed to meet their burden.

The Court further finds that substantial evidence exists in the record from which the jury could have concluded that the limitations Defendants actually did challenge are not met in the asserted prior art.

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<sup>7</sup> The Court observes that this issue has all the earmarks of the kind of challenge raised for the first time after a trial is complete and the appellate lawyers comb the record after the trial lawyers have left the field. Whether or not such is the case here, GFI is itself largely responsible for any problem about which it now complains. Here, GFI sat silently when the Court indicated these entities would be referred to collectively, and further, GFI regularly treated them as one and the same throughout the trial.

## **1. Limitations appearing in both independent Claims 1 and 13**

Defendants argue that Claims 1–4 and 16–17 are invalid in view of U.S. Patent No. 5,844,278 (“*Mizuno (US)*”).<sup>8</sup> Specifically, Defendants argue that four limitations that KAIST contended were not met by *Mizuno (US)* are in fact met. The Court notes that, though Defendants characterize this argument as directed only to certain Asserted Claims, if any of these four limitations are not met by *Mizuno (US)*, such evidence would support a finding of no invalidity as to independent Claim 1 and all of its dependent claims, i.e., Claims 1–6, 11–12, and 15–17. It would also support a finding of no invalidity as to independent Claim 13, which likewise contains each of these four limitations.

### **a. “a bulk silicon substrate”**

Defendants argue that, on cross-examination, Dr. Kuhn conceded that *Mizuno (US)* does disclose a bulk silicon substrate. (Dkt. No. 578 at 22 (citing Dkt. No. 497 at 186:4–16; Dkt. No. 491 at 41:3–6, 42:12–14; PX-1290 at 9:1–4, Fig. 8A).) KAIST responds that Dr. Kuhn did no such thing. According to KAIST, Dr. Kuhn explained that *Mizuno (US)* was a silicon-on-insulator (“SOI”) design and did not disclose a bulk silicon substrate. (Dkt. No. 592 at 20 (citing Dkt. No. 497 at 124:4–15, 129:16–130:12).) Dr. Kuhn agreed on cross-examination that Figure 8A of

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<sup>8</sup> The Court distinguishes this reference from Japanese Published Patent Application No. 1996-139325 (“*Mizuno (JP)*”), which was not asserted by Defendants in this case and was asserted for the first time before the PTO *after* the jury’s verdict in this case as part of Samsung’s request for *ex parte* reexamination. (*See* Dkt. No. 651-2 at 3; 659-1 ¶ 2.) Indeed, Samsung specifically distinguished *Mizuno (JP)* from *Mizuno (US)* in its request for *ex parte* reexamination. (Dkt. No. 659-2 at 12 (stating that *Mizuno (US)* “is not part of any invalidity ground raised in this reexamination request.”).) The Court finds that consideration of *Mizuno (JP)* would be inappropriate on this record. Likewise, any attempt to overturn the jury’s verdict, by this or another court, on such a basis would be inappropriate. *See Moffitt*, 66 U.S. at 283 (Title to money judgments for patent infringement “does not depend upon the patent, but upon . . . the judgment of the court.”); *In re Swanson*, 540 F.3d at 1379 n.5 (“[A]n attempt to reopen a final federal court judgment of infringement on the basis of a reexamination finding of invalidity might raise constitutional problems.”).

*Mizuno (US)*, shows “a protrusion extending up from its bulk substrate,” (*Id.* (citing Dkt. No. 497 at 186:4–16)), but on redirect she clarified that the projection is connected to an SOI substrate, not a bulk substrate (*Id.* (citing Dkt. No. 497 at 195:8–18)).

The Court agrees that Dr. Kuhn clarified her testimony and reaffirmed her original testimony that *Mizuno (US)* does not disclose a bulk silicon substrate. This is substantial evidence from which the jury could conclude that Claim 1 and its dependents were not anticipated by *Mizuno (US)*.

**b. “a source/drain region which is formed on both sides of the Fin active region except where said gate overlaps with the Fin active region”**

Defendants next argue that *Mizuno (US)* in fact discloses a “source/drain region which is formed . . . except where said gate overlaps with the Fin active region.” Defendants acknowledge that Dr. Kuhn testified that *Mizuno (US)* does not disclose such, but that “the source/drain would be diffusing under the gate.” (Dkt. No. 578 at 22 (citing Dkt. No. 497 at 132:25–134:20).) However, Defendants contend that KAIST offered no evidence of such but that the evidence shows the opposite, citing only *Mizuno (US)* itself and its own experts’ interpretation of the reference. (*Id.* at 23 (citing PX1280 Fig. 8A; Dkt. No. 496 at 55:24–56:15; Dkt. No. 497 at 34:8–35:2).) Indeed, Defendants consistently argue that “Dr. Kuhn *contended* that” a limitation is not met, as if Dr. Kuhn’s testimony is mere attorney argument and not competent evidence. (*See, e.g.*, Dkt. No. 578 at 22.) Dr. Kuhn’s testimony that a limitation is not met is evidence that the jury was entitled to credit over Defendants’ experts’ testimony to the contrary.

Defendants do not explain why Dr. Kuhn interpreting *Mizuno (US)* one way is not substantial evidence but its own experts interpreting the reference another way is substantial evidence. The jury was free to credit whichever experts and their testimony it found to be credible.

There is substantial evidence in the record from which the jury could have concluded that this limitation is not met in *Mizuno (US)*.

**c. “a Fin active region which is a wall-shape”**

KAIST’s expert, Dr. Kuhn, opined that *Mizuno (US)* does not disclose a “wall-shape” Fin active region because there is no evidence *Mizuno (US)* uses the Fin shape and gates to create the fully depleted Fin active region. (Dkt. No. 497 at 131:1–132:24.) Defendants argue that this theory fails because Dr. Kuhn conceded that full depletion is not a requirement of the “wall-shape” term. (Dkt. No. 578 (citing Dkt. No. 497 at 186:17–24).) KAIST responds that Dr. Kuhn admitted only that the Court has not construed “wall-shape” to require full depletion but also explained that the term has a plain meaning to a person of ordinary skill in the art. (Dkt. No. 592 at 21 (citing Dkt. No. 497 at 131:1–132:24).) While Dr. Kuhn testifies that the “wall-shape” term is met because there is full depletion, she does not, in fact, ever link full depletion to the term “wall-shape” or explain why a person of ordinary skill in the art would understand “wall-shape” to require full depletion. (See Dkt. No. 497 at 131:1–132:24.)

However, it was not KAIST’s burden to establish that this limitation is *not* met in *Mizuno (US)*. Rather, it was Defendants’ burden at trial—and their burden on this motion—to identify evidence establishing that this limitation *has been* met by clear and convincing evidence. Defendants have not pointed to any such evidence, let alone evidence that “points so overwhelmingly in favor of one party that reasonable jurors could not arrive at any contrary conclusion.” *Core Wireless*, 880 F.3d at 1361. Defendant have failed to meet their burden of establishing that this limitation was met.

**d. “a contact region and a metal layer which are formed at said source/drain and gate contact region”**

Defendants concede that Dr. Kuhn testified that *Mizuno (US)* “does not disclose the ‘metal layer which is formed at said source/drain and gate contact region’ as Mizuno’s ‘aluminum wiring is not one of the source/drain with a gate,’ but is ‘sitting up further.’” (Dkt. No. 578 at 23 (quoting Dkt. No. 497 at 134:21-136:16).) However, Defendants argue that *Mizuno (US)* “expressly discloses otherwise,” citing the reference itself and their expert’s testimony that it discloses “aluminum wiring” used as a “metal wiring layer.” (*Id.*; Dkt. No. 497 at 35:25–36:17.) Dr. Kuhn explained why, in her opinion, a person of ordinary skill in the art would not interpret this reference to “aluminum wiring” as meeting the “contact region and a metal layer” limitation:

[A]luminum is a material that diffuses like made in a semiconductor device. And device engineers do not put aluminum anywhere near an active gate. So aluminum wiring is certainly used, but it’s always used away from the gate. In a process with a metal contact, the usual material will be tungsten or a refractory material. So this aluminum wiring is not one of the source/drain with a gate.

(Dkt. No. 497 at 135:14–136:13.) The jury was free to credit this testimony over that of Defendants’ experts, and it—without more—constitutes substantial evidence from which the jury could have concluded that this limitation is not met in *Mizuno (US)*.

## **2. Additional Limitations**

As noted above, Defendants failure to meet their burden to show that *each* of the four limitations discussed above are met, as well as their failure to establish the limitations of Claims 1 and 13—which they do not even raise in their motion—are each an independently sufficient reason to uphold the jury’s verdict on invalidity as to all of the Asserted Claims. Nonetheless, for completeness, the Court considers Defendants’ arguments as to the additional limitations of Claim 13 and the dependent Asserted Claims. That done, however, the Court finds that Defendants have failed to meet their burden as to these limitations as well.

**a. Claims 5 and 6**

Defendants argue that the additional limitations of Claims 5 and 6 are indisputably met under the Court’s claim construction. Defendants argue that under the Court’s construction, reducing “the parasitic capacitance between the gate and the bulk substrate,” as required by Claim 5, “is satisfied by a second oxidation layer thickness between 20 nm and 800 nm.” (Dkt. No. 578 at 23–24 (citing Dkt. No. 179 at 32).) Similarly, Defendants argue that the Court construed “the contact resistance is reduced,” as required by Claim 6, to be met “merely by selecting the contact size to be greater than the fin width.” (*Id.* at 23 (citing Dkt. No. 179 at 35–36).) Defendants argue that, because it is undisputed that *Mizuno (US)* discloses both of these structural elements—a “second oxidation layer” between 20 nm and 800 nm as well as a contact size greater than the fin width—that these limitations are met by *Mizuno (US)*. (*Id.* at 23–24.)

KAIST responds that the Court’s construction is not an explanation of how the limitations are met, but an explanation of why the limitations are not indefinite in light of the teachings of the Asserted Patent. (Dkt. No. 592 at 22.) Though a limitation is not indefinite because the patent explains the steps required to meet it, it does not follow that any reference disclosing these steps also discloses the limitation. The Court agrees that without the teachings of the Asserted Patent, it would not be clear how to satisfy these limitations. (*Id.*; *see also* Dkt. No. 179 at 32, 35–36.)

Dr. Kuhn explained why *Mizuno (US)* failed to meet these limitations. (Dkt. No. 497 at 138:6–139:11.) The jury was free to believe her testimony over Defendants’ experts’ contrary testimony.

**b. Claim 13**

In its argument with regard to the additional limitation of Claim 13, “enlarging the width of said Fin active region within the oxidation layer as it approaches the bulk substrate,” Defendants again note Dr. Kuhn’s testimony that this limitation is not met by *Mizuno (US)*, but then argue that

it is “indisputably” the opposite, citing their own expert’s testimony and *Mizuno (US)* itself. (Dkt. No. 578 at 24 (citing Dkt. No. 497 35:7–24, 140:22–141:21; Dkt. No. 496 at 67:10–69:6; PX1290, fig. 18.)

The fact that Dr. Kuhn disputed that this limitation was met means it is not “indisputably show[n].” (*Id.*) Dr. Kuhn and Dr. Subramanian both offered competent expert opinions about their respective interpretations of Figure 18 of *Mizuno (US)*. The jury was free to credit either one and the Court will not substitute its judgment for that of the jury’s where substantial evidence to support the jury’s finding exists.

### **c. Claims 11, 12, and 15**

Defendants argue that Claims 11, 12, and 15 are invalid as obvious based upon combinations of *Mizuno (US)* and U.S. Patent Pub. No. 2002/0011612 (“*Hieda*”) or *Mizuno (US)* and U.S. Patent No. 6,355,532 (“*Seliskar*”). (Dkt. No. 578 at 24–25.) Dr. Kuhn explained why a person of skill in the art would not be motivated to combine these references. (Dkt. No. 497 at 149:23–151:3, 154:15–157:16.) This is substantial evidence that the jury was entitled to credit in finding that the claims were not obvious.

### **D. Willfulness**

Samsung challenges the jury’s finding that it willfully infringed the Asserted Claims and requests judgement as a matter of law of no willfulness. (Dkt. No. 580.) KAIST opposes this motion and in its own motion requests that the Court enhance the damages awarded by the jury as a result of Samsung’s willfulness. (Dkt. No. 586.) The Court concludes that there is substantial evidence to support the jury’s finding of willfulness and that such willfulness warrants

enhancement of the damages awarded to KAIST. The Court therefore awards KAIST two times the amount of damages that the Court finds are supported by the evidence.<sup>9</sup>

### **1. Judicial Estoppel**

As a threshold matter, Samsung argues that KAIST is judicially estopped from arguing that Samsung acted willfully because it previously argued to the Court that Samsung did not rely on the Asserted Patent at all and because the Court accepted such an argument in finding against Samsung on its defense of equitable estoppel. However, Samsung’s argument in this regard misunderstands this Court’s prior fact-finding. In the Court’s view, it’s prior finding that Samsung did not “rely on a belief that Professor Lee would never assert the ’055 patent when it decided to adopt the patented technology” (Dkt. No. 574 at FF 140; *see id.* at FF141–FF152) is not “plainly inconsistent” with a finding of willfulness, *In re Oparaji*, 698 F.3d 231, 235 (5th Cir. 2012).

The Supreme Court in *Halo Electronics, Inc. v. Pulse Electronics, Inc.*, described conduct warranting enhancement under § 284 as “willful, wanton, malicious, bad-faith, deliberate, consciously wrongful, flagrant, or—indeed—characteristic of a pirate.” 136 S. Ct. 1923, 1932 (2016). Where an individual or entity takes another’s property without any regard for whether or not the victim is entitled to that property or will later seek to reclaim it, such conduct is “characteristic of a pirate” and equally characteristic of a lack of reliance on—or a lack of regard for—the conduct of the property owner. *Id.*

The Court found that Samsung thought the ’055 Patent “was not quite important” and thus “did not pay really much attention to [it].” (Dkt. No. 574 at FF143 (quoting Dkt. No. 547-9, at

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<sup>9</sup> The Court makes this determination mindful of the actual amount of damages the Court finds are supported by the evidence, as such is relevant to at least *Read Factor* 4. The Court makes this enhancement determination in order to determine an appropriate remittitur to offer KAIST. Should a jury in a new damages trial award a meaningfully different amount, the Court will, in such event, entertain motions to reconsider its decision with regard to enhancement.

113:25–114:8).) Samsung was “going to invest in creating a sub-20 nm process node *regardless* of the ’055 Patent.” (*Id.* at FF150 (emphasis added).) Samsung’s knowledge of and subsequent disregard of the ’055 Patent is equally consistent with a finding of willfulness as it is with a finding of no reliance. The Court concludes that KAIST is not judicially estopped from asserting that Samsung’s conduct was willful.

## **2. Substantial Evidence**

Samsung next argues that KAIST failed to adduce substantial evidence to support a finding of willfulness. Samsung argues that no reasonable jury could have found that it copied the ’055 Patent based upon two presentations given by Prof. Lee, the inventor of the ’055 Patent, in 2006 and 2012. (Dkt. No. 580 at 6–8.) Samsung also argues that Dr. Kuhn was an inappropriate witness to testify about Samsung’s alleged copying. (*Id.* at 8–11.) Samsung asserts that its pre-suit knowledge of the patent alone cannot support a finding of willfulness. (*Id.* at 11–12.) Additionally, Samsung argues that KAIST has failed to identify any non-patent materials upon which Samsung may have relied that fully disclose the invention of the ’055 Patent. (Dkt. No. 603 at 2.)

KAIST responds by citing inventor and expert testimony that Prof. Lee’s publication practiced the ’055 Patent. (Dkt. No. 594 at 1 (citing Dkt. No. 488 at 89:24–98:8, 93:15–94:15, 95:10–12; Dkt. No. 489 at 65:11–24, 66:12–67:16).) The presentations Prof. Lee gave to Samsung expressly discussed these publications. (*See, e.g.*, PX1608 at 9, 10; Dkt. No. 488 at 93:15–19.) KAIST also cites evidence that as early as 2002 Samsung was aware that Prof. Lee had filed for a patent for his invention and that he asked Samsung to take a license. (Dkt. No. 594 at 4–5.) Prof. Lee testified that Samsung was again approached about the patent in 2011 and 2012. (Dkt. No. 489 at 29:11–15.) The jury also heard that it was not until two to three years after this notice that the accused product was completed and the first infringement occurred. (Dkt. No. 494 at 7:17–8:8; Dkt. No. 493 at 48:20–23; Dkt. No. 491 at 212:25–213:3; Dkt. No. 497 at 71:25–72:2.)

In sum, KAIST adduced evidence that Samsung “was aware of the [Asserted Patent] prior to the current litigation,” that the parties had “prior business dealings from which the jury could have inferred that [Samsung] believed that it needed [a] license,” and “circumstantial evidence that [Samsung] copied [Prof. Lee’s] technology.” *Georgetown Rail Equip. Co. v. Holland L.P.*, 867 F.3d 1229, 1245 (Fed. Cir. 2017) This is substantial evidence to support a conclusion that “subjective recklessness led to willful infringement in this case.” *Id.* Although Samsung “dispute[s] several of these facts, the jury was free to decide whose evidence it found more compelling on the question of willfulness.” *Id.* Having such freedom, the jury reached a verdict that this Court must accept and respect.

### **3. Enhancement**

Having determined that there is substantial evidence to support the jury’s finding of willfulness, the Court next turns to the question of enhancement under § 284. Considering the factors set forth by the Federal Circuit in *Read Corp. v. Portec, Inc.*, the Court finds that enhancement is warranted in this case. 970 F.2d 816, 827 (Fed. Cir. 1992).

*Read* Factor 1: As the Court has discussed, KAIST adduced evidence showing that Samsung had access to Prof. Lee’s designs while it was developing the accused product, which tends to show that Samsung “deliberately copied the ideas or design of another.” *Id.*

*Read* Factor 2: While Samsung asserted at trial reasons that it felt it did not infringe, the Court does not find any specific evidence of any investigation undertaken by Samsung which would have reasonably allowed it to arrive at this belief. (*See* Dkt. No. 607 at 6–7; Dkt. No. 616 at 2–3.) Accordingly, the Court does not find that Samsung “investigated the scope of the patent and formed a good-faith belief that it was invalid or that it was not infringed.” *Read*, 970 F.2d at 827.

*Read* Factor 3: The Court agrees with Samsung that its “behavior as a party to the litigation” is more appropriately analyzed in the context of KAIST’s pending § 285 motion. *Id.*; *see Barry v. Medtronic, Inc.*, 250 F. Supp. 3d 107, 120-21 (E.D. Tex. 2017). That Court leaves that analysis to that context.

*Read* Factor 4: The Court agrees with Samsung that its “size and financial condition” are appropriate to consider as a potential mitigating factor rather than as a reason for enhancement. *Read*, 910 F.2d at 827; *see Idenix Pharms. LLC v. Gilead Sciences, Inc.*, 271 F. Supp. 3d 694, 701 (D. Del. 2017).

*Read* Factor 5: Samsung points to two issues in attempting to show the “[c]loseness of the case.” *Read*, 910 F.2d at 827. First, Samsung notes that KAIST did not seek summary disposition on many of the issues ultimately tried to the jury. (Dkt. No. 607 at 11.) Second Samsung argues that it “had a strong argument, based on the Intel license, that damages for all Defendants should be no higher than \$7.4 million.” The jury’s verdict awarding \$400 million against Samsung alone is a fairly clear indication that Samsung’s damages argument was not strong. Moreover, the Court does not view KAISTs decision not to seek summary disposition as dispositive. While the Court finds ample evidence to support the jury’s verdict, which found against Samsung in every respect, the Court does not view the case as so close or not close as to meaningfully impact its decision to enhance the damages award.

*Read* Factor 6: The “duration of [Samsung’s] misconduct” is relatively short. *Read*, 910 F.2d at 827. Infringement did not occur until 2015 and this case was brought in November of 2016. (See Dkt. No. 607 at 12.) However, the Court also considers as relevant Samsung’s pre-infringement misconduct that later ripened into infringement. Other *Read* factors, including *Read* factor 1, make clear that pre-infringement conduct is relevant to the issue of enhancement. In that

respect, Samsung’s misconduct began at least as early as 2011. (*See id.*) The Court views this factor as slightly favoring enhancement.

*Read* Factor 7: The Court does not agree with Samsung’s assertion that its failure to take “[r]emedial action,” *Read*, 970 F.2d at 827, is not relevant so long as the defendant disputes the jury’s verdict. (Dkt. No. 607 at 12.) The Court expects that most defendants will not agree with a finding of an infringement, and it would completely obviate this factor if a defendant could avoid it simply by challenging the verdict.

*Read* Factor 8: The Court finds no evidence from the record that Samsung had a “motivation to harm” the patentee. *Read*, 970 F.2d at 827.

*Read* Factor 9: The Court finds some evidence that “defendant attempted to conceal its misconduct.” *Read*, 970 F.2d at 827. KAIST points to conduct that occurred during the development of the accused product, though not to evidence that Samsung’s actual infringement was concealed from KAIST. (Dkt. No. 586 at 15.) The Court views Samsung’s pre-infringement misconduct, ultimately ripening into infringement, as having some relevance to the issue of enhancement. Accordingly, Samsung’s repeated statements to Prof. Lee that they could not commercialize his invention while simultaneously developing the accused product, counsels in favor of enhancement. (*Id.* (citing PX1374 at 1; PX2068 at 1).)

Taking all these factors together, the Court finds that enhancement is warranted but not to the full extent allowed by § 284. Accordingly, the Court awards KAIST two-times, but not three-times, the amount of damages under § 284.

#### **IV. THE PARTIES’ MOTIONS RELATED TO DAMAGES AND NEW TRIAL**

Samsung also moves for judgment as a matter of law on damages (Dkt. No. 577) and, separately, for a new trial, potentially conditioned on a remittitur (Dkt. No. 579). These issues are closely related. Therefore, the Court addresses them together.

### A. New Trial on Damages

In its Damages JMOL, Samsung asserts that there is no evidence to support the jury's finding on damages and that the evidence at trial supports only its asserted damages theory—that damages should be no more than \$6,200,000. In its Motion for New Trial, Samsung argues that the grounds asserted in its Damages JMOL in the alternative warrant a new trial that could be conditioned on a remittitur. The Court agrees with Samsung that the evidence proffered at trial is insufficient to support the jury's verdict of \$400,000,000 against Samsung. However, the court disagrees that \$6,200,000 is the appropriate amount to award in place of the jury's verdict.

The Federal Circuit applies regional circuit law to a court's decision to grant a remittitur or new trial. *Laser Dynamics, Inc. v. Quanta Comput., Inc.*, 694 F.3d 51, 66 (Fed. Cir. 2012). Whether to grant a new trial or remittitur is within the discretion of the district court. *Id.* The Fifth Circuit follows the maximum recovery rule in deciding the amount of a remittitur. *Longoria v. Hunter Express, Ltd.*, 932 F.3d 360, 364–65 (5th Cir. 2019). Under this approach, the court should “award the highest amount the jury could have awarded.” *Id.* at 364. This approach “preserves as much of the jury’s award as possible” and is the “only remittitur approach . . . compatible with the Seventh Amendment.” *Id.* at 365; *see also* 11 Charles Alan Wright & Arthur R. Miller, *Federal Practice and Procedure* § 2815 (3d ed. 2019).

Applying this approach, the Court determines that the maximum amount the jury could have awarded, based upon the evidence adduced at trial, is \$101,501,708. Incorporating the

Court's determination regarding enhancement under § 284 discussed herein, the Court therefore conditions a new trial on damages on a remittitur of \$203,003,416.<sup>10</sup>

**1. Running royalty evidence was insufficient to support the jury's lump-sum verdict**

In its first argument in its Damages JMOL, Samsung argues that running royalty evidence, such as that adduced by KAIST, is insufficient "as a matter of law" to support a lump-sum verdict like the one returned by the jury. (Dkt. No. 577 at 5.) In response, KAIST argues that no authority from the Federal Circuit prohibits the use of running-royalty evidence to award lump-sum damages. (Dkt. No. 593 at 1–2.) KAIST also argues that substantial evidence supported the jury's award of a lump sum beyond the \$321,438,451 amount, which KAIST's damages expert, Roy Weinstein, testified was "the 'minimum amount' for the limited damages period of November 29, 2016 to May 14, 2018." (*Id.* at 2 (citing Dkt. No. 491 at 209:10–16); *see also id.* at 2–4.)

The Court agrees with KAIST that running-royalty evidence may be used to arrive at a lump-sum damages award so long as "some basis for comparison . . . exist[s] in the evidence presented to the jury." *Lucent Techs., Inc. v. Gateway, Inc.*, 580 F.3d 1301, 1326–30 (Fed. Cir. 2009). However, the Court disagrees that such evidence was presented in this case. The jury heard evidence that the minimum amount of damages adequate to compensate KAIST during the November 29, 2016 to May 14, 2018 period was \$321,438,451. (Dkt. No. 491 at 208:5–7.) Of this amount, \$219,936,743 is attributable to speed and power efficiencies derived from the invention and \$101,501,708 are attributable to manufacturing cost savings derived from the invention. (*Id.*

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<sup>10</sup> The Court disagrees with Samsung's assertion that if the Court finds the jury's verdict unsupported by the evidence its only option is to award \$6,200,000, the amount Samsung asserted at trial, or that KAIST has waived its right to a new trial. (*See* Dkt. No. 604 at 10.) The maximum recovery rule requires the Court to remit the highest amount supported by the evidence. Moreover, Samsung itself moved for a new trial. (Dkt. No. 579.)

at 204:22–207:25.) However, the jury was not presented with evidence from which to extrapolate beyond this period to award damages for the entire life of the patent, such as a per unit royalty rate or evidence of the anticipated number of units to be sold throughout the life of the patent.<sup>11</sup>

While the Court finds the jury’s damages award unsupported by the evidence, the proper remedy is not to disregard KAIST’s damages theory in its entirety. Rather, the maximum recovery rule requires the Court to award the maximum amount the jury could have awarded based upon the evidence. Mr. Weinstein clearly testified that Samsung was entitled to at least \$321,438,451, although neither he nor any other expert gave the jury a basis to extrapolate beyond that number. Thus, the Court concludes that under the maximum evidence rule, it should award \$321,438,451 or that portion of it that is otherwise supported by the evidence.

## **2. KAIST adduced substantial testimony accounting for the Intel license**

Samsung argues that KAIST’s evidence of damages is insubstantial because its expert, Mr. Weinstein, disregarded a license to the Asserted Patent taken by Intel, “giving it lip service but failing to incorporate it into his analysis.” (Dkt. No. 577 at 6.) As an initial matter, the court notes that Samsung brings this motion under Federal Rule of Civil Procedure 50(b), challenging the sufficiency of the evidence presented at trial, not under Federal Rule of Evidence 702, challenging the reliability and admissibility of the evidence. Having failed to raise such an admissibility challenge before now and under Rule 50(a), the Court finds that such an argument has been procedurally waived. (*See* Dkt. Nos. 225, 505.)

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<sup>11</sup> Mr. Weinstein noted only his per unit royalty rate for smartphones, which is \$4.74. The parties in their briefing have had to rely on Mr. Weinstein’s demonstratives, which are not evidence, to establish Mr. Weinstein’s other royalty rates. (*See* Dkt. No. 577 at 16 (citing Dkt. No. 491 at 206:4–20; PDX 6.49).)

The first of the fifteen *Georgia-Pacific* factors is “the royalties received by the patentee for the licensing of the patent in suit, proving or tending to prove an established royalty.” *Georgia-Pacific Corp. v. U.S. Plywood Corp.*, 318 F. Supp. 1116, 1120 (S.D.N.Y. 1970). Under this factor, the Intel license was certainly relevant for the jury to consider in reaching its damages decision. Indeed, the record reflects that the jury heard substantial testimony about the Intel license and its disputed comparability or non-comparability to the hypothetical negotiation between the patentee and Defendants. (See Dkt. No. 491 at 193:9–198:9; Dkt. No. 497 at 55:20–56:12; 59:23–61:14.) The Court also instructed the jury that, “[i]n determining the reasonable royalty” it may consider “whether the patent owner had an established royalty for the invention.” (Dkt. No. 498 at 64:22–25.)

The jury was made well aware of the Intel license and why it should be relevant to their considerations. However, the jury also heard substantial testimony regarding why the hypothetical negotiation between the patentee and the Defendants would have differed from the negotiation between the patentee and Intel. (Dkt. No. 194:8–197:20.) The jury was free to credit this testimony in reaching their final determination on damages.

The cases cited by Samsung are inapposite. *Laser Dynamics, Inc. v. Quanta Computer, Inc.* addressed whether an expert’s testimony was reliable under FRE 702, not whether there was sufficient evidence to support the jury’s verdict. 694 F.3d 51, 79 (Fed. Cir. 2012). In *Whitserve, LLC v. Computer Packages, Inc.*, the Federal Circuit found an expert’s testimony insufficient to support the jury’s verdict because the expert simply “recited each [*Georgia-Pacific*] factor and [made] a conclusory remark about its impact on the damages calculation before moving on,” not because the expert failed to consider a comparable license. 694 F.3d 10, 31 (Fed. Cir. 2012). These cases do not fit the evidence presented in this trial to this jury.

### **3. The evidence in the record establishes a proper apportionment analysis**

Samsung argues that KAIST failed to introduce evidence of damages “tied directly to the *incremental value* of the asserted patent” and thus failed to adduce substantial evidence to support its damages theory. (Dkt. No. 577 at 9 (emphasis original).) Specifically, Samsung argues that KAIST failed to properly apportion (1) the improvements in bulk FinFET technology represented by the invention; (2) the power-and-speed benefits and cost savings attributed to Samsung’s investment in the technology; and (3) the smallest salable patent practicing unit. (*Id.* at 9–16.) The Court finds that KAIST’s damages evidence properly considered and took account of other improvements in the technology and Samsung’s own investment. However, the Court finds that Mr. Weinstein failed to establish that his varied royalty rates between smartphones, tablets, and stand-alone chips properly credit the value attributable to the Asserted Patent. Therefore, the Court finds no substantial evidence to support Mr. Weinstein’s damages attributable to the power-and-speed benefits.

As a threshold matter, the Court notes that Defendants did not challenge the admissibility of KAIST’s experts’ apportionment opinions as disclosed in their expert reports. Therefore, any such challenges are procedurally waived and the Court reviews Samsung’s challenges only for the sufficiency of the evidence admitted at trial. *Stevenson*, 327 F.3d at 407.

#### **a. KAIST’s experts properly considered the Asserted Patent’s improvement over the prior art**

Samsung argues that KAIST incorrectly assumed that the Asserted Patent alone was “responsible for *all* benefits of moving from the prior planar mode to the 14 nm bulk FinFET node.” (Dkt. No. 577 at 10 (emphasis in original).) Accordingly, Samsung argues, the evidence adduced cannot support the jury’s verdict because it failed to “consider the *incremental advancement of the*” Asserted Patent. (*Id.* at 11 (emphasis in original).)

KAIST responds that its experts did in fact analyze the prior art designs and concluded that they did not work and accordingly assigned them no value. (Dkt. No. 593 at 15–16.) Dr. Kuhn testified that she analyzed the prior art designs and concluded that “[t]hey just don’t work” and that she “couldn’t very well calculate benefits . . . from something that doesn’t actually work.” (Dkt. No. 491 at 36:14–24, 110:9–17.) Another of KAIST’s experts, David Witt, similarly testified that if there had been “any type of FinFET device that had gone into production -- you know, people would have used it. I believe all previous attempts at it -- were not successful.” (*Id.* at 164:11–22.) He concluded that because no such device was “reduced to practice, then . . . they have no attributable benefit.” (*Id.* at 157:5–9.)

Instead, KAIST’s experts analyzed the performance improvements of the 14 nm bulk FinFET design over the then dominate 20 nm planar transistor design. (*Id.* at 22:24-23:5, 126:5-12.) They also compared the cost saving of the 14 nm bulk FinFET design over the prior art 28 nm planar transistor design (which was cheaper to manufacture than the 20 nm design). (*Id.* at 28:5-29:3, 136:4-11.)

The jury heard competent testimony that the prior attempts at a FinFET design were unsuccessful and entitled to no value and thus the proper comparison was the incremental value of the patent over the commercially viable alternatives. The jury was free to credit this testimony.

**b. The evidence adduced properly accounts for Samsung’s contributions to the technology**

Samsung next argues that KAIST’s damages theory failed to account for Samsung’s contributions to the technology, specifically the hafnium oxide layer added by Samsung and Samsung’s \$300,000,000 investment in research and development. (Dkt. No. 577 at 11–14.)

With regard to the hafnium oxide layer, Dr. Kuhn testified that the 20 nm planar transistor, to which she compared the 14 nm bulk FinFET design, also included a hafnium oxide layer. (Dkt.

No. 491 at 22:24–23:5, 104:13–107:24.) Thus, Dr. Kuhn properly accounted for the hafnium oxide, present in the accused product and the prior art, and concluded that the benefits she identified were attributable to the bulk FinFET taught by the Asserted Patent, not the hafnium oxide layer. (Dkt. No. at 107:16–24.)

As to Samsung's \$300,000,000 investment in the technology, KAIST argues that these costs were credited back in the 88% of benefits from the Asserted Patent that Mr. Weinstein opined Samsung should keep in the hypothetical negotiation. (Dkt. No. 593 at 16; *see also* Dkt. No. 491 at 208:1–14 (“[Samsung] gets to keep almost 2.4 billion [dollars]. Those are the -- that's its 88 percent share of the benefits.”).) Second, KAIST argues that Dr. Kuhn explained that it would be inappropriate to credit this investment because Samsung was going to need to make an investment in a new node regardless. (Dkt. No. 593 at 17; *see also* Dkt. No. 491 at 108:21–109:23 (“Because of the way the industry is structured, there is going to be another node, and so there's the expense of going into manufacture. They are going to run another node no matter what. And it's not fair to attribute the cost of what is going to inevitably happen.”).)

As KAIST aptly notes, Samsung obviously disagrees with KAIST's experts, “but this is what jury trials are for.” (Dkt. No. 593 at 17.) The jury was free to consider Samsung's adduced testimony about these investments, but it was also free to credit KAIST's expert's analysis about these factors and conclusions that they did not entitle Samsung to a reduction in the royalty to be paid.

**c. There is not substantial evidence to support Mr. Weinstein's apportionment between smartphones, tablets, and stand-alone chips**

Samsung argues that Mr. Weinstein failed to tie his damages analysis to the smallest salable unit. Samsung says he applied his regression analysis to end-user smartphones and tablets and then apportioned down from there to stand alone chips. (Dkt. No. 577 at 15–16.) Mr. Weinstein provides

a detailed regression analysis in which he excludes all other variables that impact price other than speed and power and offers an opinion about the value increase in a smartphone or tablet attributable to a one-percent increase in speed (or power converted to speed). (Dkt. No. 491 at 188:6–14.)

However, Mr. Weinstein then summarily opines that this value should be “apportioned” down to the chip level for stand alone “SoCs not sold in phones.” (*Id.* at 188:15–18.) Mr. Weinstein does not explain how or why he arrived at this apportionment. There is no explanation in the record as to why the speed and power benefits ultimately realized in the completed phone or tablet should not be captured by the stand-alone chip, which allegedly practices the Asserted Patent and will ultimately be incorporated into such a device. Without any explanation, the jury had no substantial evidence from which to conclude that the royalty rate for the smartphones and tablets properly captured the incremental value of the Asserted Patent, whether the much lower royalty rate for the stand-alone chips properly captured that amount, or whether it was somehow both.

The Court agreed with the conclusion of the Magistrate Judge, who initially heard Samsung’s *Daubert* challenge, that Mr. Weinstein’s report “concludes the sales prices of Samsung’s devices increase by an amount tied to the benefits stemming from the accused processors” and that “[t]his approach stays sufficiently clear of the concerns addressed by the ‘smallest salable unit’ principle.” (Dkt. No. 453 at 6.) Nonetheless, at trial, Mr. Weinstein gave no explanation for his apportionment between stand-alone chips and end-user devices or why they should be entitled to such disparate royalty rates despite both practicing the Asserted Patent. There is not, for example, testimony that end-user devices practice the patent *more* than stand-alone chips by perhaps including more transistors than the stand-alone chips. Nor is there testimony that the speed-and-power benefits are somehow more manifest in the end-user devices than in the stand-

alone chips. Indeed, such testimony would seem like a concession that some of the benefits being attributed in the end-user devices are attributable to something other than the Asserted Patent since both the end-user device and the stand-alone chip both practice the patent.

Absent any explanation for his apportionment between end-user devices and stand-alone chips, there was not substantial evidence from which the jury could include that the \$219,936,743 attributed to speed and power efficiency were properly apportioned. (*See* Dkt. No. 491 at 206:4–20.) The Court thus excludes these damages from its offer of remittitur as unsupported by the evidence.

**4. KAISTs evidence of damages is consistent with the rules of the hypothetical negotiation**

**a. There was substantial evidence to support a finding that KAIST would receive 12% of the profits attributed to the Asserted Patent**

Samsung next criticizes Mr. Weinstein’s calculation of damages based on a profit-share ratio of 12%. (Dkt. No. 577 at 17.) As an initial matter, the Court notes that there is no evidence that the jury, in fact, credited Mr. Weinstein’s testimony that KAIST was entitled to 12% of the profits attributed to the Asserted Patent. KAIST asked for approximately \$321 million for a roughly 18-month damages period as part of a running royalty. The jury instead awarded \$400 million in a lump-sum award for the entire life of the patent. This amount is substantially less than that which KAIST would have received over the life of the patent had the jury agreed with Mr. Weinstein. Consequently, it is substantially less than Mr. Weinstein’s proposed 12% profit share.

Additionally, the Court again notes, that Samsung brings this motion to challenge the sufficiency of the evidence, not its reliability or admissibility under FRE 702. Samsung did not challenge the admissibility of Mr. Weinstein’s 12% figure under *Daubert* or via any other pre-trial

mechanism and has procedurally waived such an argument, which it raised for the first time after all such evidence was presented to the jury. (*See* Dkt. Nos. 225, 505.)

Finally, Samsung challenges the sufficiency of the evidence by making arguments to the Court that it never made in front of the jury. (*See* Dkt. No. 577 at 17–18 (citing no testimony or argument in the record challenging Mr. Weinstein’s 12% figure).) The Court will not sit in the place of the jury and entertain evidence and arguments on a Rule 50(b) motion that were not heard by the jury at trial. Samsung has presented no evidence in the record to contradict or challenge Mr. Weinstein’s opinion that a 12% profit share is appropriate, let alone evidence “so overwhelmingly in favor of one party that reasonable jurors could not arrive at any contrary conclusion.” *Core Wireless*, 880 F.3d at 1361.

**b. Mr. Weinstein’s testimony regarding actual sales and profits was proper and relevant for the jury to consider**

Samsung next faults Mr. Weinstein for basing his opinion on “actual financial data” generated after the hypothetical negotiation rather than “any contemporaneous financial projections the parties” might have actually considered as part of the hypothetical negotiation. (Dkt. No. 577 at 19.) However, as Samsung itself admits, the Federal Circuit has stated that “the hypothetical negotiation analysis permits and often requires a court to look to events and facts that occurred thereafter and that could not have been known to or predicted by the hypothesized negotiators.” *Lucent Techs., Inc. v. Gateway, Inc.*, 580 F.3d 1301, 1333 (Fed. Cir. 2009).

Samsung’s argument appears to be that Mr. Weinstein improperly instructed the jury that the parties in the hypothetical negotiation “have access in a sense to information about the future, to the future sales, the future profits associated with using the technology.” (Dkt. No. 577 at 19 (citing 176:16–177:9).) However, Mr. Weinstein did not instruct the jury on the law. The Court did. In doing so, the Court properly instructed the jury that “[e]vidence of things that happened

after the infringement first began may be considered in evaluating the reasonable royalty only to the extent the evidence aids in assessing what royalty would have resulted from a hypothetical negotiation.” (Dkt. No. 498 at 63:5–9.) The Court also instructed the jury that they should “determin[e] a reasonable royalty *at the time of the hypothetical negotiation.*” (*Id.* at 63:12–13 (emphasis added).)

The Court concludes that Mr. Weinstein’s testimony relying upon actual financial data was appropriate for the jury to consider and that the jury was properly instructed on how to weigh this after-infringement information in considering what would have resulted from the hypothetical negotiation. The Court thus finds that this was appropriate and is substantial evidence that supports the jury’s verdict.

**c. Mr. Weinstein’s regression analysis was reliable**

Samsung renews its challenge, first made in its *Daubert* motion to exclude Mr. Weinstein’s testimony, that Mr. Weinstein’s regression model, which he uses to determine his speed-and-power-efficiency damages, was unreliable for failing to consider certain variables. (Dkt. No. 577 at 21; *see also* Dkt. No. 491 at 183:13–15; Dkt. No. 225.) As an initial matter, the Court notes that it has already excluded these damages on other grounds.

However, the Court agrees with the Magistrate Judge that this issue “amounts to a disagreement between experts as to what variables should be considered. That goes to the weight to be given to the opinion rather than its admissibility.” (Dkt. 453 at 4.) The Court also agrees with KAIST that the proper means for Samsung to address these alleged disparities was through the crucible of cross-examination. The jury was free to credit Mr. Weinstein’s testimony as well as any testimony challenging the variables he chose. While the Court finds this portion of Mr. Weinstein’s damages opinion unsupported on other grounds, the Court does not conclude that

substantial evidence did not exist due to any alleged impropriety with Mr. Weinstein’s regression model.

**5. There is no evidence to support Samsung’s argument that exhaustion applies to any chips considered in Mr. Weinstein’s analysis**

Samsung argues that KAIST “effectively sought both a first royalty from SAS for making Snapdragon chips and also a second royalty from SAS’s downstream customer SEA for selling devices including Snapdragon chips.” (Dkt. No. 577 at 21.) Samsung then cites to portions of Mr. Weinstein’s testimony describing speed and power efficiency damages and cost savings damages analysis, which at no point mentions SAS or SEA. (*Id.* at 21–22 (citing Dkt. No. 491 at 202:15–205:16, 206:4–8, 206:21–208:14).) It then concludes without further citation, “Thus, [KAIST] included in its damages calculation both the SAS chips and also the SEA mobile products containing those same chips.” (*Id.* at 22.) The Court agrees with KAIST that this is “an entirely new factual theory that was never presented to the jury.” (Dkt. No. 593 at 25.) The Court finds no evidence in the record to support it.

The Court has already noted that it will not substitute itself in the place of the jury and entertain new evidence not presented to the jury at trial. There is no indication in the record, one way or another, whether chips in SAS and SEA products have been counted twice. As such, there is certainly no evidence that “points so overwhelmingly in favor of one party that reasonable jurors could not arrive at any contrary conclusion.” *Core Wireless*, 880 F.3d at 1361.

In sum, the Court finds that the jury’s damages verdict is unsupported by the evidence because there was not substantial evidence from which the jury could calculate a royalty beyond the damages period to which Mr. Weinstein opined or conclude that Mr. Weinstein’s apportionment of speed and power efficiency damages was proper. However, under the maximum recovery rule, the Court finds that up to \$101,501,708, representing the amount of damages Mr.

Weinstein opined were attributable to cost savings, is supported by the evidence. (*See, e.g.*, Dkt. No. 491 at 207:5–20.)

### **B. New Trial on Liability**

While the Court concludes that a new trial on damages, subject to remittitur, is appropriate, the Court disagrees with Defendants that a new trial on infringement and invalidity is likewise warranted. The Court finds no passion or prejudice in the jury’s verdict or any other prejudicial error that would make a remittitur inappropriate and a complete new trial necessary. *See Evers v. Equifax, Inc.*, 650 F.2d 1793, 798 (5th Cir. 1981).

Defendants incorporate by reference their motions for judgment as a matter of law in arguing that the jury’s verdict is against the great weight of the evidence. For the reasons discussed above, the Court disagrees. Each of the issues disputed in Defendants’ motions for judgment as a matter of law boil down to a battle between the experts. The Court does not find that testimony proffered by one side so greatly outweighs the testimony proffered by the other as to warrant a new trial.

The Court likewise disagrees that a new trial is warranted because Dr. Subramanian was not permitted to testify that the “first oxide layer” cannot comprise two separate layers or that the “first oxide layer” and the “gate oxide layer” limitations must be met by two distinct structures. The Court finds that both of these opinions were properly excluded.

#### **1. The jury’s verdict does not reflect passion and prejudice**

Samsung argues that the jury’s verdict reflects passion and prejudice because the jury awarded an amount in excess of what KAIST requested as to Samsung but awarded no damages as to Qualcomm and GlobalFoundries. (Dkt. No. 579 at 15.) Samsung further argues that the jury’s finding of willfulness only as to it also reflects passion and prejudice. (*Id.*)

While the Court ultimately concludes that the \$400,000,000 verdict awarded by the jury was not supported by the evidence, the Court does not conclude that it was excessive in a manner that reflects prejudice. The jury heard expert testimony that KAIST should be awarded \$321,438,451 for a roughly 18-month damages period as part of a running-royalty award. Instead, the jury awarded \$400,000,000 as a lump-sum royalty covering the entire life of the patent. This is not more than KAIST asked for. It is less—significantly less over the life of the patent. Thus, the Court finds that the jury’s verdict does not reflect passion and prejudice but a reasoned and measured attempt to try to extrapolate a running-royalty request into an appropriate lump-sum award.

That Samsung’s co-defendants were assessed no damages does not indicate passion or prejudice on the part of the jury. The jury heard testimony that if one entity makes an accused product on behalf of another entity a royalty is only paid by one of those entities. (Dkt. No. 497 at 80:9–22.) Indeed, this is the very reason why Qualcomm’s own expert opined that it should pay “essentially zero” in damages. (*Id.*) The jury also heard testimony that the hypothetical license would have included “make, sell, and have made rights, foundry rights, and rights for their customers.” (*Id.* at 64:8–9.) The jury additionally heard testimony that Qualcomm and GlobalFoundries were mere customers of Samsung, relying on Samsung’s 14-nanometer bulk FinFET technology, which the jury found infringes the Asserted Patent. (Dkt. No. 493 at 84:16–86:3; Dkt. No. 495 at 5:4–6:11.) Thus, it was reasonable for the jury to conclude that Samsung, who developed the accused technology, would have purchased rights for itself and its customers at the hypothetical negotiation.

Importantly, the Court does not determine whether such a conclusion by the jury would be unimpeachable. No party has challenged the jury’s verdict of no damages as to Qualcomm and

GlobalFoundries. The Court merely determines that it is possible for the jury to have reached its conclusion dispassionately based upon the testimony presented and thus that the verdict does not reflect passion and prejudice.

The jury's finding of willfulness likewise does not reflect passion and prejudice. The jury heard evidence, discussed in detail herein, that Samsung had a unique and long-standing relationship with Prof. Lee, and that Qualcomm and GlobalFoundries were mere customers of the technology developed by Samsung relying on Prof. Lee's teachings. Such evidence reasonably supports the jury's finding that Samsung alone was willful.

Samsung also argues that a jury note asking whether the jury may "reward lump sum plus royalty payment for future sales" is an indication of the jury's intent to punish Samsung. (Dkt No. 579 at 15 (quoting Dkt. No. 498 at 120:2–7).) The Court finds that this note was only an indication of "some confusion or lack of understanding" with the Court's initial instructions. *Nissho-Iwai Co. v. Occidental Crude Sales, Inc.*, 848 F.2d 613, 620 (5th Cir. 1988). The Court further finds that its instructions in response to this note, which Defendants agreed to without objection (Dkt. No. 498 at 123:13–16), "effectively negated any confusion or impropriety," *Nissho-Iwai*, 848 at 620. The Court finds no prejudice indicated by the jury's note. A note from the jury asking some clarification from the Court after a lengthy and detailed charge are both common and reasonable, in this Court's experience.

Finally, Samsung argues that KAIST inappropriately "fostered" prejudice in the jury by arguing that Samsung stole property from Prof. Lee and Dr. Kuhn and inappropriately contrasting Samsung, a foreign company, with "Intel, the American company, who . . . followed the law." (Dkt. No. 579 at 15 (quoting Dkt. No. 498 at 109:11–12).) While the Court does not necessarily applaud these comments by KAIST during its closing arguments, particularly contrasting Samsung

with “the American company,” the Court respects the reasonable latitude our jury trial system affords counsel as zealous advocates on behalf of their clients. Further, the Court instructed the jury not to be swayed by prejudice and that each party should be treated equally. (Dkt. No. 498 at 109:25–111:1.) Moreover, Samsung did not object to KAIST’s closing at the time or at a sidebar immediately afterward. Absent such a contemporaneous objection or any indication that the jury’s verdict was excessive, the Court does not find that KAIST’s error, if any, “in final argument was of such magnitude . . . as to have seriously prejudiced defendants’ right to a fair trial” such that a new trial is “required even in the absence of timely objection.” *Edwards v. Sears, Roebuck & Co.*, 512 F.2d 276, 286 (5th Cir. 1975); *see also Nissho-Iwai*, 848 F.2d at 619–620.

**2. The Court properly precluded Dr. Subramanian from testifying about the “first oxide layer” beyond the scope of his report**

Defendants argue that the Court improperly excluded testimony within the scope of Dr. Subramanian’s report, warranting a new trial. Defendants argue that in his report “Dr. Subramanian was unambiguous that these two oxides are *not* a single ‘layer’ as required by the claims but ‘two layers.’” This argument is not correct. Dr. Subramanian stated consistently in his report that there was “*one* gate oxide” and that “[t]his gate oxide comprises two layers—an interfacial SiO<sub>2</sub> layer and a high-k dielectric layer.” (Dkt. No. 228-10 ¶ 108; *see id.* ¶¶ 102–125.) Consistent with his report, the Court allowed Dr. Subramanian to testify about these two layers. (*See* Dkt. No. 496 at 22:16–19 (“[W]hat you have is you have a Fin, you have an SiO<sub>2</sub> layer, you have a Hafnium oxide layer, and then you have the gate. And that has important consequences on the interpretation.”).) Consistent with his report, Dr. Subramanian testified that the SiO<sub>2</sub> layer cannot be the “first oxide layer” because the gate electrode is not formed on it and that the hafnium oxide layer cannot either because it is not formed on the surface of the Fin. (*Compare* Dkt. No. 228-10 ¶¶ 112–113, *with* Dkt. No. 496 at 22:21–23:6.)

However, the Court precluded Dr. Subramanian from testifying that the layers are *separate* layers or that the hafnium oxide is an *intervening* layer because he did not “opine[] that the claimed oxide layer elements could not be met because the HfO layer is a different, intervening layer.” (Dkt. No. 597 at 7.) Neither this language nor opinion appear in his report.

As a result, Defendants argue that they were “precluded from offering expert testimony responding to Dr. Kuhn’s opinion that the HfO and SiO<sub>2</sub> layers act in concert as one single layer.” (*Id.*) However, Dr. Subramanian never opined in his report that the two layers do *not* act in concert. To the contrary, he consistently referred to them as forming “one gate oxide.” (Dkt. No. 228-10 ¶ 107.)

Moreover, Defendants had already elicited testimony from Dr. Samavedam that “between the gate and the silicon Fin, we have two layers. We have Hafnium oxide layers that are in contact with the gate and a second oxide layer that is on top of the FIN.” (Dkt. No. 494 at 85:6–9.) The Defendants likewise argued in their closing, relying on the testimony of Dr. Kuhn and Dr. Samavedam, that “the Hafnium oxide layer is a separate layer.” (Dkt. No. 498:10–21.) Defendants have not explained why Dr. Subramanian’s additional, duplicative testimony would have been meaningful or why preventing such duplication would be a meaningful error.

The Court thus concludes that Dr. Subramanian was properly confined to the scope of his report and that, even if any error existed, Defendants have not demonstrated that such error was anything more than harmless.

**3. The Magistrate Judge properly excluded Dr. Subramanian’s opinion that a single structure cannot meet both the “first oxide layer” and “gate oxide layer” limitations**

As another ground for new trial, Defendants re-raise their objections to the Magistrate Judge’s exclusion of Dr. Subramanian’s opinion that one structure cannot satisfy both the “first oxide layer” and “gate oxide layer” limitations of the claims. (Dkt. No. 579 at 8–9; Dkt. No. 470.)

The Court reviews non-dispositive rulings of the Magistrate Judge for clear error or a conclusion contrary to law. *See Fed. R. Civ. P.* 72(a); 28 U.S.C. § 636(b)(1)(A). Finding none, the Court overrules these objections.<sup>12</sup>

Federal Circuit law is clear that “the use of two terms in a claim requires that they connote different meanings, not that they refer to two different structures.” *Applied Med. Res. Corp. v. U.S. Surgical Corp.*, 448 F.3d 1324, 1333 n.3 (Fed. Cir. 2006) (emphasis omitted); *see also Intellectual Prop. Dev., Inc. v. UA-Columbia Cablevision of Westchester, Inc.*, 336 F.3d 1308, 1320 n.9 (Fed. Cir. 2003) (“[W]e see no reason why, as a matter of law, one claim limitation may not be responsive to another merely because they are located in the same physical structure.”). Moreover, as the Magistrate Judge correctly recognized, Dr. Subramanian’s opinion that the “first oxide layer” and “gate oxide layer” must be distinct structures, would have excluded from the scope of the claims “an embodiment of the invention [disclosed in the specification] with a continuous layer of material in contact with the fin active region.” (Dkt. No. 442 at 4 (citing ’055 Pat. fig.3a, 3b).) “[A] claim interpretation that excludes a preferred embodiment from the scope of the claim is rarely, if ever, correct.” *Accent Packaging, Inc. v. Leggett & Platt, Inc.*, 707 F.3d 1318, 1326 (Fed. Cir. 2013).

The Court concludes that Dr. Subramanian’s opinion that a single structure could not satisfy two limitations was contrary to law and thus properly excluded.

## **V. KAIST’S MOTIONS FOR FINAL JUDGMENT AND FEES AND COSTS**

As discussed herein, the Court denies Defendants’ Motion for New Trial conditioned on a remittitur by KAIST. KAIST’s decision in this regard will impact the final judgment ultimately issued by this Court. Further, if KAIST elects a new trial on damages, the parties’ conduct during

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<sup>12</sup> For clarity, the Court likewise overrules the remaining objections in Dkt. No. 470.

such trial may bear on the Court's findings under § 285. Consequently, the Court determines that it should defer action on KAIST's Motion for Final Judgment and Motion for Fees and Costs until after KAIST files a remittitur or a new trial on damages is concluded. Such motions are carried.

## VI. CONCLUSION

For the reasons set forth herein, Defendants' Motion to Stay Case Pending *Ex Parte* Reexamination (Dkt. No. 651) is **DENIED**.

Defendants' Renewed Motion for Judgment as a Matter of Law on Non-Infringement and Invalidity (Dkt. No. 578), Samsung's Renewed Motion for Judgment as a Matter of Law for Damages of No More Than \$6.2 Million (Dkt. No. 577), and Samsung's Renewed Motion for Judgment as a Matter of Law on Willfulness (Dkt. No. 580) are likewise each **DENIED**.

The Motion by KAIST for Enhancement of Damages Due to Willful Infringement (Dkt. No. 586) is **GRANTED** as set forth herein.

Samsung's Motion for New Trial and Contingent Motion of GlobalFoundries and Qualcomm for New Trial (Dkt. No. 579) is **CONDITIONALLY DENIED** subject to a remittitur in the amount of \$203,003,416. KAIST shall file such a remittitur within 14 days of the issuance of this Order. If KAIST does not file such a remittitur, the Court shall order a new trial on damages as to Samsung to begin on **Monday, March 16, 2020** and directs the parties to prepare accordingly.

The Motion by KAIST for Entry of Final Judgment as the Prevailing Party and Award of Costs and Pre- and Post-Judgment Interest (Dkt. No. 587) and the Motion by KAIST for Exceptional Case and Award of Attorney Fees and Costs (Dkt. No. 585) are each **CARRIED** pending KAIST's filing of a remittitur or the completion of a new trial on damages.

**So ORDERED and SIGNED this 13th day of February, 2020.**

  
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RODNEY GILSTRAP  
UNITED STATES DISTRICT JUDGE